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**MAIL STOP AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first-class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on: July 29, 2004

By:

*Carol Prentice*  
Carol Prentice

In re Application of: Jagiella, et al.  
Application No.: 10/047,447  
Filed: January 14, 2002  
Title: **SENSOR DEVICE FOR BURR EXAMINATION**

Examiner: H. Pham  
Art Unit: 2877

Dear Sir:

Transmitted herewith is a **RESPONSE** in the above-identified application.

**FEE CALCULATION:**

				SMALL ENTITY		LARGE ENTITY	
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE	ADDITIONAL FEE	RATE	ADDITIONAL FEE
TOTAL	49	49	0	X 9	\$	X18	\$ 0
INDEPENDENT	2	3	0	X 43	\$	X86	\$ 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				+145	\$	+290	\$ 0
TOTAL ADDITIONAL FEE					\$		\$ 0

**ENCLOSURE(S):**

- ☒ **Petition for One-Month Extension of Time Under 37 C.F.R. 1.136(a), together with a check in the amount of \$110.00 to cover the extension fee.**
- ☒ **Response dated July 29, 2004 -- 8 pages**
- ☒ **Exhibits A, B and C -- 4 pages**
- ☒ **The Commissioner is hereby authorized to charge any deficiency in the payment of the required fee(s) or credit any overpayment to Deposit Account No. 50-0625.**

Respectfully submitted,

*Andrew D. Gathy*  
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Date: July 29, 2004  
Attorney Docket No.: HOE-669

08/03/2004 ZJUWAR1 00000024 10047447

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HOE-669

P A T E N T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
 )  
Manfred Jagiella et al. ) Examiner: H. Pham  
 )  
Application No.: 10/047,447 ) Art Unit: 2877  
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Filed: January 14, 2002 )  
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For: **SENSOR DEVICE FOR BURR EXAMINATION**

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By: Carol Prentice

Carol Prentice

RESPONSE

Dear Sir:

This communication is responsive to the Office Action mailed on March 29, 2004. Claims 50-98 are pending in the application.

The Examiner has rejected Claims 50-76 and 90-98 under 35 U.S.C. 103(a) as being unpatentable over Ohtomi (U.S. Patent No. 4,894,597) in view of Franklin et al. (U.S. Patent No. 6,628,408).

The Examiner has rejected Claims 77-89 under 35 U.S.C. 103(a) as being unpatentable over Ohtomi (U.S. Patent No. 4,894,597) and Franklin et al. (U.S. Patent No. 6,628,408) and

further in view of Matsuura et al. (U.S. Patent No. 5,243,265). These rejections are respectfully traversed.

#### Discussion of Prior Art

The combination of the Ohtomi reference and the Franklin et al. reference fails to disclose or suggest each of Applicants' claimed elements.

The Ohtomi reference teaches a deburring robot comprising a detector 9 (see Col. 2, line 25). The detector 9 is shown in figure 4 and comprises a laser 91 and an optical sensor 97. A laser beam is swung by a scanning mirror 94A with a predetermined period and reflected by an irradiation mirror 95 to be radiated on the burr portion 6a on the workpiece 6 as an irradiation La scanning the burr portion. The reflection Lb, in agreement with the contour of the burr, is received by an optical sensor 97 through reception lens 96 (Col. 2, lines 43-50).

This is in contrast to the present invention wherein at least one distance sensor is provided. With the detector of Ohtomi, the "reflection picture" of a burr is evaluated. This is completely different from Applicants' claimed structure where the distance between the detector and a burr is measured.

Further, the detector 9 of Ohtomi does not have a detector head in the sense of the present invention. As set forth in Applicants' claim 50, the detector head is moveable relative to the workpiece and is couplable electromagnetically to the workpiece or the workpiece is adapted to be acted upon by the detector head with an electromagnetic signal. The coupling to

the workpiece or an electromagnetic reaction signal of the workpiece to the impinging signal are dependent on a distance between detector head and workpiece. This distance is determinable without any contact and a workpiece surface is adapted to be scanned by the detector head without any contact.

The optical sensor 97 of Ohtomi is at a distance to the irradiation mirror 95 of the detector 9. Consequently, there is a separation between transmission and detection, whereas with the present invention the detector head is couplable electromagnetically to the workpiece or the workpiece is adapted to be acted upon by the detector head with an electromagnetic signal and the coupling to the workpiece or an electromagnetic reaction signal of the workpiece to the impinging signal are dependent on a distance.

Therefore, with the detector of Ohtomi, no local coupling can be measured. In particular, the detector 9 of Ohtomi can not be used to examine burrs in bores.

It is an aspect of the present invention that the detector head which is moveable relative to the workpiece can couple locally to the workpiece. The scanning is completed via relative movement of the detector head and workpiece. Ohtomi does not teach the provision of such a detector head and, in particular, does not teach the provision of at least one distance sensor with such a detector head for burr examination via (local) distance measurements.

Turning to the combination of Ohtomi and Franklin et al. proposed by the Examiner, it is respectfully submitted that this combination can only be the result of hindsight. The Franklin et al. reference does not remedy the defects of the Ohtomi reference. The Franklin et al. reference teaches a method for

measuring an amplitude of an ultrasonic horn for ultrasonic bonding of materials such as composite webs during processing of the material being bonded (Col. 1, lines 8-13).

Applicants' respectfully assert that the Franklin et al. reference has no relation to a device for checking bores in or edges on an object of measurement. Applicants first traverse the rejection on the grounds that Ohtomi and Franklin et al. are non-analogous art. For the purposes of evaluating obviousness of claimed subject matter, the particular references relied upon must constitute "analogous art." The art must be from the same field of endeavor, or be reasonably pertinent to the particular problem with which the inventor is involved. The Franklin et al. reference is not in the same field of endeavor and is not reasonably pertinent to the particular problem of checking bores in or edges on an object of measurement. The Franklin et al. reference explicitly teaches the object of measuring the amplitude of stationary and rotating ultrasonic horns during production of an ultrasonically bonded web material.

Moreover, secondary considerations support the conclusion that the present invention is nonobvious. Specifically, long-felt need, failure of others to solve the problem, unexpected results and the commercial success of the invention are indicia of non-obviousness. The Court of Appeals for the Federal Circuit has made it clear that such secondary considerations of non-obviousness must be considered. The intractable nature of the problem - i.e., long-felt need and failure to solve - is a strong indicator of nonobviousness.

In the relevant technical field there was a longstanding need to provide a burr examination sensor device. The present invention provides such a device. Such a device is neither

disclosed in Ohtomi and Franklin et al. nor remotely suggested by these documents.

It has been a longstanding problem to provide a burr examination device that allows a non-time-consuming examination of burrs and allows quantitative information content to be inferred. As mentioned in the last paragraph of page 1 of the specification, and continuing on to page 2, burr examinations have usually been carried out manually in that, for example, a corresponding workpiece surface is felt with a finger, the finger nail, a tooth pick, a cleaning tube of cotton wool lining, the tip of a pencil or a marker mandrel. Visual methods have also been used where, for example, a burr is examined with the naked eye, under a microscope or by means of a magnifying glass, an autoscope, or by means of an endoscope. None of these prior art techniques provide the advantages of Applicants' novel distance sensor device.

Applicants' inventive sensor device has received a warm welcome and has been appreciated in the field. Indeed, Applicants' claimed device has earned the two separate awards. In particular, Applicants' inventive burr sensor system was selected by R&D magazine as one of the one hundred most technological significant new products of the year 2003. Further, Applicants' were awarded the "AutoTec Award 2003" as best innovation in automotive technology for 2003 by the International Institute for Research.

Exhibits A-C submitted herewith provide evidence of commercial success and acknowledgement by skilled artisans that Applicants' claimed invention overcame a long felt need in the art and are evidence of nonobvious. Exhibit A is a copy of the AutoTec Award 2003. Exhibit B is a copy of the R&D 100 Award.

Exhibit C is a brochure describing Applicants' award winning system, which is the subject of the present application.

Lastly, Applicants assert that the combination of the Ohtomi reference and the Franklin et al. reference fails to teach or suggest Applicants' claimed invention. Specifically, the prior art references of Ohtomi and Franklin et al. fail to teach or remotely suggest in accordance with the present invention, a burr examination sensor device for the examination of burrs on a workpiece wherein a sensor device comprising at least one distance sensor with a detector head is provided. Nor does the cited art disclose or suggest *inter alia*, the provision of a signal which is dependent on a distance between the detector head and workpiece, this distance being determinable without any contact, as set forth in Applicants' claim 50.

As a result of the inventive use of a distance sensor as a separate component, where the distance sensor interacts with the workpiece and the interaction depends on the distance between the distance sensor and workpiece, a burr examination may be carried out in a simple manner. The distance sensor forms a sensor field, which is coupled locally to the workpiece. Inner workpiece surfaces may also be examined when the distance sensor is inserted accordingly. The examination takes place without any contact such that a simple and, in particular, mechanical use is facilitated (see page 3, first paragraph of Applicants' specification).

The influence of soiling is also reduced with Applicants' claimed system, since any soiling of the workpiece or sensor has an effect, at the most, on the local sensor field (see page 3, second paragraph of Applicants' specification).

Since the coupling of the distance sensor to the workpiece is influenced by the distance, and the presence of a burr alters the distance itself, quantitative information with respect to the burr may also be determined (e.g., burr extensions and as a result the type of burr).

In view of the above, Applicants' respectfully submit that the claimed invention is not rendered obvious by the combination of the Ohtomi reference and the Franklin et al. reference, or any of the other prior art references of record, taken alone or in combination. The prior art simply fails to teach or suggest a device as claimed by Applicants' for checking bores in or edges on an object of measurement. Moreover, since independent claims 50 and 93 are not rendered obvious, then claims 51-92 and 94-98 dependent thereon are believed to be allowable.

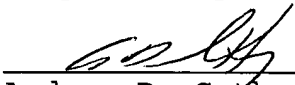
Further remarks regarding the asserted relationship between Applicants' claims and the prior art are not deemed necessary, in view of the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of acquiescence to the stated grounds of rejection.



Conclusion

In view of the above, reconsideration and allowance of each of the claims is respectfully requested. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,

  
\_\_\_\_\_  
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**Attorney Docket No.: HOE-669**

**Date: July 29, 2004**